



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/539,322	06/15/2005	Paraskevas Dunias	NL 021490	2724
24737 7590 04/02/2009 PHILIPS INTELLECTUAL PROPERTY & STANDARDS P.O. BOX 3001 BRIARCLIFF MANOR, NY 10510				
EXAMINER				
CLARK, MAYA ANGELICA				
ART UNIT		PAPER NUMBER		
4128				
MAIL DATE		DELIVERY MODE		
04/02/2009		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/539,322

Applicant(s)

DUNIAS ET AL.

Examiner

MAYA CLARK

Art Unit

4128

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 June 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 June 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/5508)
Paper No(s)/Mail Date _____

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION***Drawings***

1. The drawings are objected to under 37 CFR 1.83(a) because they fail to show the laser source in figure 4 as described in the specification. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). **No new matter should be entered.**

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

2. The disclosure is objected to because of the following informality: the term "leaser" on page 12, line 16 should be changed to --laser--.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this

Office action:

A person shall be entitled to a patent unless --

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1,4-6, and 10 are rejected under 35 U.S.C. 102(e) as being anticipated by Olowinsky et al (US 20040232119 A1).

Regarding claim 1, Olowinsky discloses a method for laser spot welding, whereby the beam of laser source (1) is directed to the material (6) to be welded, characterized in that, during the welding operation, the surface temperature of said material at the spot of the weld is detected (see Olowinsky- figure 1a).

Regarding claims 4-6, Olowinsky teaches a method characterized in that the power of the laser beam is controlled depending on the detected surface temperature of the material at the spot of the weld (claim 4 paragraph 36); a method characterized in that the power of the laser beam is decreased when a predetermined surface temperature level is detected (claim 5 paragraph 36); a

Art Unit: 4128

method characterized in that the power of the laser beam is controlled depending on the laser power absorbed by the material to be welded (claim 6 paragraph 36).

Regarding claim 10, Olowinsky discloses a device for laser spot welding, comprising means for directing a laser beam to the material to be welded (1), characterized in that temperature detection means are present for detecting, during the welding operation, the surface temperature of said material (6) at the spot of the weld (see Olowinsky-figure 1a and paragraph 36).

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Olowinsky et al (US 20040232119 A1) in view of Akhavain et al (US 20020000427 A1).

Olowinsky discloses a method for laser spot welding, whereby the beam of laser source (1) is directed to the material (6) to be welded, characterized in that, during the welding operation, the surface temperature of said material (6) at the spot of the weld is detected (see Olowinsky- figure 1a and paragraph 36).

Regarding claim 2, the Olowinsky reference is different in that it fails to disclose the exact method of how the surface temperature of said material at the spot of the weld will be detected.

Attention is directed to the Akhavain reference which discloses a method characterized in that the laser beam on its way to the weld spot, is reflected by means of a mirror and that infrared radiation coming from the weld spot passes through said mirror and is measured by a sensor (see Akhavain-paragraph 27). The Akhavain method serves as an easy and inexpensive method to detect the infrared radiation at the location of the spot weld.

It would have been obvious to have modified Olowinsky to include such a surface temperature detection method since it provides instant and real time surface temperature monitoring.

2. Claims 3, 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Olowinsky reference in view of Leong et al (US 5674415).

Regarding claim 3, the Olowinsky reference is different in that it fails to disclose a method characterized in that the presence of a weld is determined depending on the detected surface temperature of the spot of the weld in the cooling down phase of the welding process.

Attention is directed to the Leong reference which discloses a method and apparatus for real time weld monitoring. In figure 7, the plot of multiple sensors versus temperature indicates that the temperature sensor detects that the surface temperature at the weld area decreases or cools as the welding phase

Art Unit: 4128

comes to completion (see Leong-col.1, lines 52-60; col.2, lines 20-21 and col.9, lines 12-19). This detection indicates that the spot welding is near completion.

It would have been obvious to have modified the Olowinsky reference to include such a method capable of detecting the presence of a weld based on the surface temperature detected during the cooling phase of the welding process since this cooling phase confirms the presence of a spot weld.

Regarding claim 8, the Olowinsky reference is different in that it fails to disclose a method characterized in that the power of the laser beam is switched off or is decreased after the predetermined laser energy is absorbed by the material to be welded.

Attention is directed to the Leong reference which discloses a weld monitoring method capable of turning off or decreasing the laser beam power source when a predetermined amount of laser energy is absorbed by the material being welded (see Leong- col.5, lines 61-67; col.6, lines 1-8; col. 9, lines 19-37). The decreased amount of laser energy would prevent overexposure of the spot weld to laser radiation.

It would have been obvious to have modified the Olowinsky reference to include such a method capable of switching off or decreasing the laser beam power source when a predetermined amount of laser energy is absorbed in order to maintain the quality of the spot weld.

Regarding claim 9, the Olowinsky reference is different in that it fails to disclose a method characterized in that a feed back control of the power of the laser beam directed to the weld spot starts after the surface temperature has

Art Unit: 4128

reached a predetermined level in which the level is preferably a temperature near the melting point.

Attention is directed to the Leong reference which discloses a feed back control method with a detector capable of sensing when the welding pieces reach certain temperatures including temperatures in their respective melting and boiling ranges (see Leong-col.3, lines 50-61). When the surface temperature of the welding pieces reach a predetermined level which is preferably a temperature near the melting point, Leong's weld monitoring system generates a signal i.e. alarm thereby causing the power of the laser beam directed to the weld spot to start (see Leong-col.5, lines 61-67; col.6, lines 1-8; col.8, lines 1-35). The ability for the weld monitoring system to turn the power of the laser beam on at a desired temperature level allows for better control of the spot welding process.

It would have been obvious to have modified the Olowinsky reference to include such a method capable of generating a feed back control in order to start the power of the laser beam when a predetermined temperature level is reached in order to monitor spot welding at that predetermined temperature level.

3. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over the Olowinsky reference.

The Olowinsky reference fails to disclose a specific method characterized in that the power absorbed by the material is calculated by deducting the power of the reflected laser radiation from the power of the laser beam that hits the surface of the material.

Similar in concept to Ohm's law where power is equal to current multiplied by voltage, it is inherent that one of ordinary skill in the art would know that the laser power absorbed by the material is simply the result of mathematically solving for an unknown variable when the power of the reflected laser radiation and the power of the laser beam that hits the surface of the material of the material are known and therefore, the amount absorbed is known.

4. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over the Olowinsky reference.

The Olowinsky reference discloses a device capable of controlling the power of the laser beam depending on the absorbed laser energy (see Olowinsky-paragraph 36).

However, the Olowinsky reference fails to disclose a specific method characterized in that the power absorbed by the material is calculated by deducting the power of the reflected laser radiation from the power of the laser beam that hits the surface of the material.

Similar in concept to Ohm's law where power is equal to current multiplied by voltage, it is inherent that one of ordinary skill in the art would know that the laser power absorbed by the material is simply the result of mathematically solving for an unknown variable when the power of the reflected laser radiation and the power of the laser beam that hits the surface of the material of the material are known and therefore, the amount absorbed is known.

Conclusion

Art Unit: 4128

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See Notice of References Cited.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MAYA CLARK whose telephone number is (571)270-5605. The examiner can normally be reached on Monday through Friday, 10 am to 6:00 pm (First Friday Off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Khoa Huynh can be reached on (571)272-4888. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MC
AU 4128

/Khoa D. Huynh/
Supervisory Patent Examiner, Art Unit 4128